same coastline. On 6th July, 1959 there were some in Kurik's North polder and on 9th August, 1962 several along the beach; on 16th and 17th August, 1960 a few were present in that polder and also in the Gali Ephata area.

The Greenshank was never observed by me in large flocks, but usually singly or several together, sometimes with other Scolopacidae but more often not. Van den Assem 1) saw the species near Merauke in February till April 1958 and observed a group of ten on 17th April, 1958.

29. *Tringa glareola* Linn. Wood Sandpiper

Mayr's list remarks: "Recorded from Waigeu and the Mimika River" so it seems also important to publish the results of my experience in south as well as in north New Guinea. This sandpiper was a regular visitor to both polders of Kurik and the surroundings of the Rice Estate. Though I usually saw the birds alone or several together I repeatedly observed larger concentrations of ten to 20 spread over some acres of suitable habitat, including muddy ricefields from where they used to disappear when the ground became too dry. Such concentrations were found on 22nd and 23rd March, on 3rd and 11th April, 1961, on 19th and 26th March and also on 4th April, 1962. Four specimens were secured in March 1961 and April 1962. I never saw the species later than on 4th May.

On 7th October, 1962 there was a specimen on a mudbank close to a tidal forest near Sorong and in 1948 Bergman collected one here (Gyldenstolpe 6). I also observed the species repeatedly near Manokwari, especially at the locality where *Tringa ochropus* (see No. 27) was recorded; on 30th November, 1962 there were two but on 11th January, 1963 five or six, as was the case on the following days and I obtained a specimen there on 17th January.

(*to be continued.*)

Observations on *Cisticola njombe* and *nigriloris*

by C. J. Vernon

Received 5th February, 1964

I spent the first twelve days of 1964 on the Nyika Plateau, accompanying C. W. Benson and C. S. Holliday on a Rhodes-Livingstone Museum collecting expedition. The escarpments of the plateau consist largely of *Brachystegia* woodlands, but above about 5,700 feet, to the highest points at about 8,500 feet, montane short grasslands predominate, with scattered relic patches of evergreen forest, bracken-briar and other rank growth, more especially below 7,000 feet. Most time was spent in the relatively small Northern Rhodesian sector, between 6,500–6,800 feet, where we were camped at the Government Rest House. Visits were also made to the grasslands up to 7,500 feet, and to the upper reaches of the *Brachystegia.*

The ecology and altitudinal range of the ten species of *Cisticola* recorded may be summarised as follows:—

ayresii: grasslands above 6,500 feet.
lais: bracken and grasslands, 5,700–7,000 feet.
njombe: bracken and grassland, above 6,300 feet.

woosnami: *Brachystegia* woodland.
nigriloris: rank growth above 5,700 feet.
cantans: rank growth, mainly in valleys, below 6,700 feet.
natalensis: grasslands below 6,300 feet.
brachyptera: grasslands with bushes below 6,000 feet.
fulvicapilla: *Brachystegia* woodland.
aberrans: *Brachystegia* woodland.

The two species which are the subject of this paper may now be considered in detail.

Cisticola njombe

Taxonomic: This species was originally attached by Lynes (1933, 1934) to *C. aberrans*, but Benson (1948) has shown that it is a distinct species, *C. n. mariae*, of the Nyika, being no more than slightly darker than *C. n. njombe*. Benson's view was accepted by White (1962) and by Mackworth-Praed and Grant (1963), who placed *C. n. njombe* in the systematic order immediately following *C. lais*, though White does not recognise the subspecies *C. n. mariae*.

Differences from *C. lais*. Wing-lengths (in mms) of specimens of *njombe* and *lais* collected are as follows:—

njombe

4♂	54, 55, 56, 57
5♀	50, 51, 52, 52, 53

lais

6♂	55, 55, 56, 57, 59
3♀	50, 51, 52

A sexual difference in size is well known in *lais*, and it is supported by these figures. It is not so clear-cut in *njombe*, the figures given by Lynes (1933) even indicating a slight overlap. This difference between the two species was supported by my field observations.

The specimens of *njombe* are more richly coloured on the upper side than those of *lais*, the crown and tail being redder, the blackish streaking of the mantle and back margined with rufous rather than grey, the streaking showing up less boldly. The difference is especially apparent on the crown. Moreover in *njombe* the crown lacks any streaking, and the red colour extends to the sides of the head. This difference on the crown was even more obvious in the field, and it was possible without hesitation to distinguish the two species by this character alone.

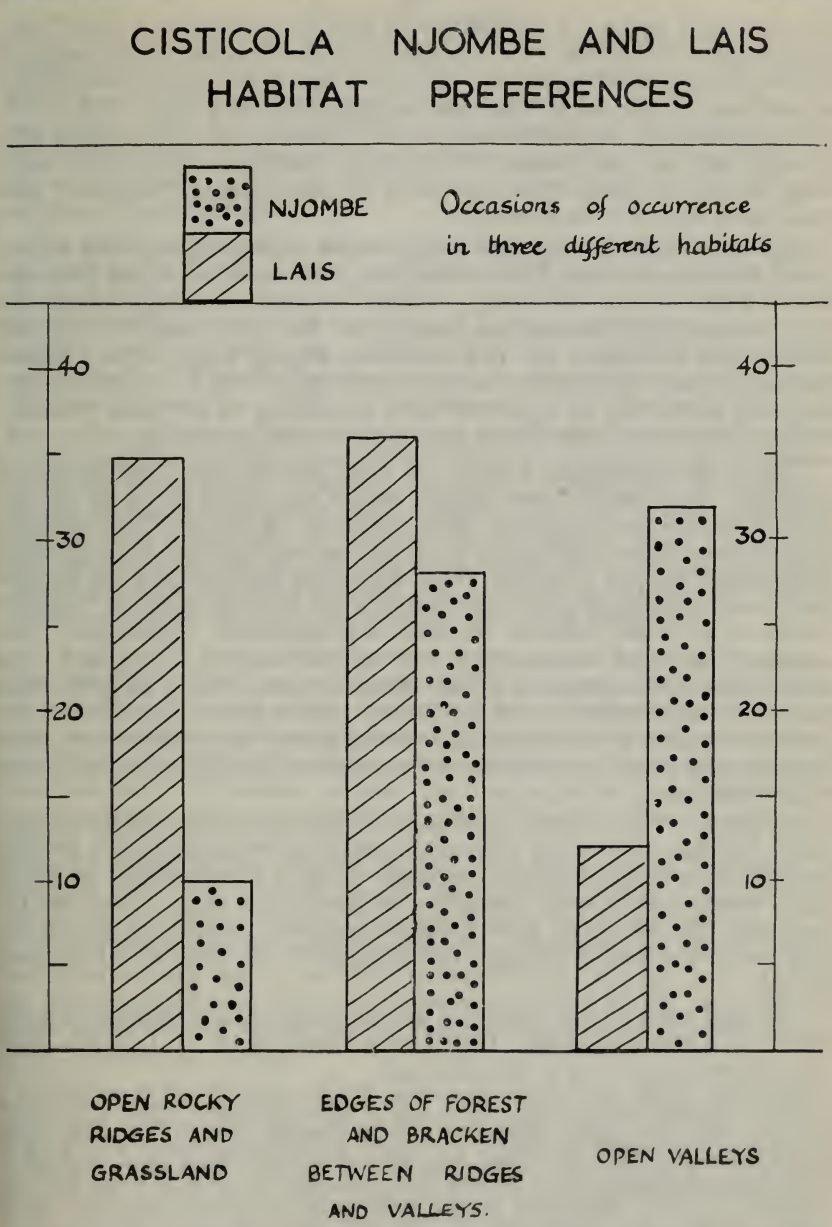
These were collected in the breeding season, in the rains, so are in summer dress. I have had the loan of four specimens of *njombe*, and five of *lais*, from the National Museum, Bulawayo, collected on the Nyika during May, August and September, in the dry season, and so presumably in winter dress. Winter specimens of *njombe* only differ from summer ones in having the blackish streakings of the mantle and back margined slightly more rufous. Winter specimens of *lais* differ from summer ones in having these marginations rufous rather than grey. But the most obvious difference is on the under side, which is strongly marked with buff in winter, merely greyish-white in summer and in all specimens of *njombe*. The distinctive features of the winter dress of *lais* are also shown in other

specimens loaned from the National Museum. Six from Mlanje and the Mafinga Mts., Nyasaland, collected in June, are quite distinct from six from eastern Southern Rhodesia and south-western Tanganyika, collected during mid-October to February. Incidentally, the four winter specimens of *njombe* have wing measurements 54, 56, 56 mm. in three males; 49 mm. in one female.

Four juveniles of *njombe*, and five of *lais*, were collected. Juveniles of *njombe* differ from adults in having the streaking of the mantle and back less bold, and margined with rufous without any greyish tone, while the crown, which is unstreaked, is not bright as in the adults, but practically concolorous with the rufous marginations of the mantle and back (in the field juveniles appeared much darker above than the adults). On the under side they are washed lemon yellow. Juveniles of *lais* are streaked on the crown, as in adults of this species, and are more boldly streaked on the mantle and back than are juveniles of *njombe*, from which they also differ on the under side in tending to have the wash more buffy, less lemon in tone. Juveniles of *njombe* had the palate yellow, with two black tongue spots somewhat blurred together, whereas adults of both sexes had the palate black.

Habitat: *Njombe* was found in the rank grass along open valleys and bordering forest and bracken patches. This can be divided into two categories, that of the undulating grasslands of the high Nyika above 7,000 feet, and that below 7,000 feet where montane forest is more extensive. On the high Nyika, *njombe* occurred in and along the edges of the many valleys, often dropping steeply to 200 feet below the short-grassed ridges. Fringing the valleys were thickets of bracken, tree fern and herbaceous plants, and in some places small patches of relic forest. *Njombe* was infrequent on the ridges, only ever in evidence where ranker plants such as bracken had encroached, as along the edges of roads. *Njombe* was the commonest Cisticola on the high Nyika, occurring between *nigriloris* in the rankest areas and *ayresii* on the ridges. *Lais* was not found above 7,000 feet, whereas in 12 valleys over a distance of 16 miles on the high Nyika, *njombe* was seen on 38 occasions (total of 85 individuals, including 17 juveniles).

On the low Nyika, *njombe* occurred mainly between 6,500 and 7,000 feet, at 6,300 feet it was infrequent, and was not seen at 6,000 feet. The vegetation is more complex than on the high Nyika, and is a mosaic of relic montane forest, regenerating secondary forest, bracken-briar and grassland. In the open valleys, resembling those on the high Nyika, *njombe* occurred in a similar density. This habitat is not unlike that of *C. tinniens* elsewhere in the Rhodesias. In the grasslands around the forest and bracken-briar patches both *njombe* and *lais* occurred, often close together, and on three occasions they were found within yards of each other. On the rocky ridges interspersed with bushes of *Protea* and *Philippia*, *lais* occurred in numbers while *njombe* was sparse. To generalise, *njombe* frequented the ranker areas and *lais* the more open and often rocky areas. Both species occurred in the intermediate areas around the forest and bracken-briar patches, but would only go into these when alarmed. Counts of *njombe* and *lais* in these three habitats on the low Nyika were made, and are shown in the histogram.



Habits: In this respect *njombe* bore no resemblance to *lais*. *Njombe* had a distinct song, frequently heard, and a display flight, whereas *lais* gave no clear song or display. The song of *njombe* was heard at any time of the day, even after sunset. A male living adjacent to our camp sang with great vigour and duration for about an hour between 5.30 and 6.30 a.m. on most mornings (the female was probably incubating eggs, as she

was only seen before 7 a.m., though no nest was found). The song, "tsk, chul-lit, chul-lit, chul-lit . . .", was fairly rapidly repeated with a pause of about ten seconds between each burst, and on one occasion 37 individual bursts were heard. Each burst was introduced with a quiet "tsk . . .", rather like one of the alarm notes of the Stonechat, *Saxicola torquata* and between two and ten, mainly five to seven individual "chul-lits", were sung. It was not given from one perch for long, and the male near our camp sang from a bush or grass.

The males made no physical display while singing, but the one at our camp did dance up and down on its perch when excited by the presence of the female. Males also sang in flight, and when chasing females the song became high pitched and excited, so that the "chul-lit" became slurred and indistinct. On two occasions singing males were watched making display flights (both had nests and eggs). This was a jerky flight, climbing at 60° for 15 feet to 20 feet, descending in the same manner, calling all the time. This display was quite like that of *tinniens*.

During the incubation period, the male did not warn the female of intruders. The female when flushed would slip away, flying up to 150 yards from the nest, and there make a pretence of feeding. Unfortunately no nests were found containing young, so the reaction then of the parents to intruders was not observed. When the young leave the nest the parents become noisy when alarmed. The alarm call of the male is either "pearp" rather as in *Prinia subflava*, or much less frequently "deer, deer" resembling the rapid introductory notes of the song of *C. chiniana*. The alarm note of the female is a high pitched, short "pee". In both cases neither could be mistaken for the "weep" alarm notes of *lais*. When the young first leave the nest they hide in the grass, but as they grow older they join the adults in the bushes when alarmed, and give the alarm note of the female.

Breeding: The seasonal stage reached was that many *njombe* were in family parties, with young at various stages out of the nest, or a smaller number were incubating eggs, probably of their second brood. In all 30 pairs were recorded with young out of the nest or eggs, 24 and six respectively. Of the family parties, eight were of 1Y, six of 2Y, nine of 3Y and one of 4Y, and of the eggs two clutches of c/2, three of c/3 and one of c/4.

The eggs were all pale green in ground colour and were marked with brown of varying intensity. The 17 eggs averaged 16.7 x 12.3 mm. and vary between 15.5–17.6 x 11.6–12.8 mm.

Nests of *njombe* were oval balls with a side entrance near the top, like those of *lais*. Dry grass blades were used, coarser than in *lais*. The outer frame was built first and small amounts of cobweb were used to hold it together and sometimes to bind it more securely to the site. Very fine dry rootlets and less often dry leaves were used in varying degrees, as in *tinniens*. The lining, thickest in the base, was of soft seed heads of grasses (*Imperata* sp.) and composites; it became compressed and felted as more was added. The nests were placed 4 to 12 in. up in either a grass tuft or a small herbaceous plant. Little attempt was made at concealment, and only a little of the grass or plant was built into the nest, but *lais* bowered the living grass over the nest as does *natalensis*.

Cisticola nigriloris

This species was widespread between 5,700 and 7,500 feet. Benson (1953) records birds down to 4,500 feet near Nchenachena on the eastern Nyika escarpment, but on the western escarpment no suitable habitat was seen below 5,700 feet. *Nigriloris* is a conspicuous and noisy species, and was common in patches of bracken-briar, on edges of secondary regenerating forest and in rank valleys. It overlapped in habitat with *cantans*, *lais* and *njombe*.

The birds went about in parties of up to nine birds. They would feed, hopping about in the bushes and undergrowth until one would fly on ahead, settle and start calling. The others would follow, and as they joined the first so the intensity of song would increase. Sometimes this might develop into a display, but would shortly die down and they would resume feeding. This was repeated irregularly during the day, and a party of seven followed for a morning did so every 15 to 30 minutes. The call was a loud double noted squeak, rising and descending the scale, ''flit-flou''. A secondary call, given by the birds at the same time, was a quieter lower pitched squeaky, ''sssquip, sssquip'', rather like the creaking leather makes when it is taut. Each member of the party was on the alert, and any one would give an insistent alarm squeak, ''peat''. This note was more drawn out and agitated when adults were alarmed at a nest. These calls have been heard all the year round by J. M. Feely (in conversation), and even two birds alone would call in this manner.

A display which was a development of the mutual song was seen once. One evening, ten birds of two parties of four and six joined together. One bird would start to call, others joining in, with both primary and secondary calls, so that three or more birds were calling at once. Sometimes as others joined in so the first birds stopped. The primary call was repeated much faster as the birds became excited. The singing birds would perch close together, with beaks pointed upwards and they would jerk up and down flitting their wings and cocking their tails. Sometimes a short aerial flight was made, flying up a few feet and tumbling back to the perch, or flying down to the ground rapidly snapping their wings against their bodies, rather in the manner of a *Bradypterus baboecala*. As one set of birds started singing, so might another in an adjacent bush. Then feeding would take place before the birds started another display. Mrs. Lemon (in conversation), who has spent much time on the Nyika, said that the birds displayed like this all day in October, but now (January) only did so at sunrise and sunset.

Breeding pairs did not defend their nest area from other individuals The nests found frequently had a party of birds nearby, and in one case four adults were seen carrying food to a nest and calling in alarm wnen disturbed Ten nests were found of which five were occupied. They were large bulky balls, rather like a small nest of *Centropus*. They were about 2–4 feet up, in one case 6 feet, and wedged into bushes, bracken and herbs. No attempt was made at concealment and one was at 4 feet, in an exposed *Philippia* bush on the bank of a stream. They were made of broad blades of dry grass, mainly of *Panicum* sp., but also of *Setaria*, *Digitaria*, *Urochloa* and *Imperata*. A nest at the top of a pine sapling in a windbreak was made of grasses of all five of these genera. The grass blades were wrapped round

the nests, and only traces of cobweb were used. The lining was of complete seed heads of grasses, in one case the ramenta of a tree-fern with soft pappae of composites on top.

The contents of five nests were c/2, c/3, 2Y, 3Y, and 3Y and 1 addled egg. All the eggs are light green, tending to turquoise in ground colour, very finely and profusely marked with browns. Five measure 19.2–19.9 x 13.9–14.2 mm. and the addled egg 17.4 x 14.0 mm. The nestlings had two black tongue spots which blurred together and faded as they grew older. Juveniles not long out of the nest (three sets of 2Y, and one of 1Y) were easy to recognise by their short tails and yellow gape flanges. The fully grown juvenile (one set) could only be recognised by its yellow palate, that of the adults, as supposed by Lynes (1930: 328), being black. Four adults and six juveniles were collected. The juveniles differ from adults in plumage as described by Lynes (*loc. cit.*), and had irides grey-brown rather than red-brown.

Acknowledgements: I am greatly indebted to C. W. Benson, who made the Nykia trip possible for me, and for his help in the preparation of this paper, especially the taxonomic section. I am also grateful to M. P. Stuart Irwin, of the National Museum, Bulawayo, for the loan of specimens; to J. M. Feely and Mrs. Paul C. Lemon for information about *C. nigriloris;* to A. Angus, of the Agricultural Research Station, Mt. Makulu, for identifying the plants mentioned, and to the Director of the Rhodes-Livingstone Museum for various facilities.

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NOTE by C. R. S. PITMAN

As the eggs of *Cisticola njombe mariae* and *Cisticola nigriloris* have not been previously described, C. W. Benson, with the consent of Carl Vernon, has asked me to examine these eggs critically.

Cisticola njombe mariae. The 17 eggs of this species, which are smooth with slight gloss, vary—according to clutch—considerably in ground colour from pale greenish or pale greenish or pale greenish-blue to light greenish-blue (the green tint is pronounced in all), variously specked, in some streakily, and spotted—in one c/3 discretely and darkly, with a conspicuous ring zone around top of large end—buffy-brown or fuscous on underlying lilac-grey, minutely and finely but sparingly all over. In two of the sets (c/2 and c/3) the markings are bold and clouded—of broad pale streakings of pale buffy-brown on underlying very pale lilac-grey,

most of these markings concentrated in a conspicuous broad zone around the top of the large end. In shape these eggs are mostly ovate, some elliptical, though a few (c/2) are rather squat and rounded. The lilac-grey markings are mostly not readily perceptible.

Cisticola nigriloris. These five eggs (c/2 and c/3) are distinctive, in colour light turquoise (the c/2 are a bit paler) well spotted all over with light fuscous on underlying light lilac-grey and a tendency to form a cap at top or a definite zone around the top of the large end. The eggs are smooth with slight gloss and ovate in shape. These descriptions, insofar as is possible, follow the colour chart in the *Handbook of North American Birds* (1962) by Ralph S. Palmer.

Reference:

Mackworth-Praed, C. W. and Grant, C. H. B. (1952) Birds of Eastern and North Eastern Africa. Volume 1, London.

Sarothrura affinis and some other species on the Nyika Plateau

by C. W. Benson and C. S. Holliday

On the expedition referred to in Vernon's paper, above, the following species were collected in the Northern Rhodesian sector of the Nyika Plateau, the occurrence of which was not accepted by Benson & White (1957), or based only on sight records:—

Sarothrura affinis antonii Madarasz & Neumann.

♂, 7th January, right testis 13 x 6, left 17 x 6 mm., wing 81 mm., stomach contents macerated insect fragments.

Although Mackworth-Praed & Grant (1962) record the species from Northern Rhodesia, we are unaware of any record prior to those now published. We came to associate with it a typically *Sarothrura*-like call, "huuuu", rising in the scale, lasting about two seconds, followed by an interval of about one second, and normally only repeated twice or thrice, though occasionally as many as thirty repetitions were heard. This call was frequently heard at any time of the day and also at night, and was presumed to emanate from the male (occasionally a rattling, tinny note, lasting two or three seconds, impossible to describe at all adequately, presumed to emanate from the female, was heard). It bore a strong general resemblance to those of other *Sarothrura* spp. (*Ibis*, 1956: 598), attributed to males. But it was perfectly distinct, in particular easily told from that of *boehmi* in being more prolonged, from that of *elegans* in being less so, while unlike that of *lynesi* there was no change in intensity. *Rufa* has also been collected in this area (*Bull. Brit. Orn. Cl.*, 72, 1952: 82), no doubt in lush vegetation by streams, but was not heard. It would be especially valuable if tape-recordings could be made of the very attractive calls of all the *Sarothrura* spp., including *pulchra*, which C. W. B. has heard in the Mwinilunga District, and has been described by Chapin (1939).

Pace Mackworth-Praed & Grant (1962), who record *antonii* as inhabiting marshes as well as moorland at high altitudes, only occasionally short grass, on the Nyika we only noticed it, commonly, in short grass and bracken on quite dry ground between 6,300 and 7,500 feet, and